

[JP,07-126999,A]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to bulky coated paper excellent in front-face nature.

[0002]

[Description of the Prior Art] Although coated paper is mainly used in many fields as a print sheet and need is extended, since that description is in the precision and gloss on the front face of paper which are given by applying the application liquid containing a particle pigment to paper and it has this property, if it prints on the surface of coated paper, gloss comes out to a printing side, and a print looks nice and appears.

[0003] The application liquid containing the application constituent which uses a pigment and adhesives as a principal component only on the surface of paper is applied, only by drying, in order to prepare surface smooth nature since the front-face nature of coated paper is inadequate, and to give gloss further, it consists of a metal roll and an elastic roll like a supercalender, gloss calender, and a software calender, glazing of the coated paper obtained is carried out, and through and pressure-welding processing are performed between the rolls of equipment.

[0004] However, the fault that a profound feeling does not come out even if only such coated paper that paper of an application layer will surely become tight the top where a consistency is high from the first if glazing is carried out and it lets coated paper pass to equipment, a consistency becomes high, and it is hard coming to come out thickness as a whole, and does not have the so-called waist is obtained but it prints to such coated paper cannot be escaped.

[0005] Coating of the aqueous coating liquid which uses a pigment and adhesives as a principal component is carried out to both sides of paper, and one side performs gloss calender processing to JP,54-156806,A. The reverse side Without lowering lowering and roll pressure for the temperature of the heat drum of gloss calender, and reducing a pressure roll number further or using the gloss calender itself A reverse side has [one side] the gloss of 25% or less of mat tone at 45% or more, and the manufacture approach of 1.05 or less bulky double-sided coated paper is indicated for the consistency. This approach has a fault of the ability of both sides not to make the gloss of same extent give while being unable to maintain dimension height in high glossiness, since [like gloss calender] glazing is carried out, a pressure is set up lowness using equipment and gloss is made to give coated paper.

[0006] On the other hand, the manufacture approach of two or more 100 g/m thick material double-sided coated paper is indicated for basis weight by JP,2-200888,A using a supercalender, a software calender, etc. which consist an aramid fiber of an elastic roll with which it was

blended 10 to 50% after an application and desiccation as the surface roughness of the with a Shore D degrees of hardness of 80 or more metal roll which was elasticity-rolled and was specified, and a presentation in the aqueous coating liquid which uses a pigment and adhesives as a principal component. However, this approach tends to cancel the table back difference in the smooth nature and the glossiness of coated paper, and the fault that it is closed by the paper of coated paper and dimension height is lost produces it.

[0007] bulky-ization is demanded of highest-class applications, such as the latest pictorial book, a fine-arts book of paintings, and a sample collection, on the profound character also at paper, and smooth nature and the ambivalence of glossiness improve -- having -- in addition -- and the actual condition is having not yet realized in spite of desiring an appearance of bulky coated paper.

[0008]

[Problem(s) to be Solved by the Invention] this invention person etc. came to complete a header and this invention for excelling in front-face nature and bulky coated paper being obtained by specifying a presentation and the amount of applications of application liquid, as a result of repeating examination variously in view of this actual condition about the conditions which apply a coating to a stencil.

[0009] Namely, the cause that the so-called consistency to which thickness of coated paper cannot come out of this invention person etc. easily conventionally and which in other words **** (ed)** U.S. basis weight by thickness is high Although the problem that a consistency increases can be mitigated and the property of the dimension height of coated paper can be secured if it is in applying application liquid to paper, carrying out glazing of the dry coated paper, letting it pass between the rolls of equipment and carrying out the pressure welding of the paper and this pressure-welding processing is excluded However, in order to give smooth nature and glossiness required as a print sheet to coated paper, such surface treatment is indispensable. Therefore, how to reduce the tightness condition of the paper by the pressure welding in the approach list which loosens the contact pressure at the time of carrying out glazing of the coated paper and letting it pass between the rolls of equipment, performing surface treatment as much as possible is examined wholeheartedly. Consequently, the application layer subsequently obtained first paying attention to loosening the pressure in the case of a pressure welding as much as possible by blending the kaolin which is excellent in the grant nature of gloss as an application constituent coating so that gloss may come out easily at smaller contact pressure, in case a pressure welding is carried out [in / carry out glazing and / equipment] at a high rate, and using It found out that it was effective for the synergistic effect of decreasing the amount of applications making front-face nature of coated paper the outstanding thing since the consistency is intrinsically high compared with paper, and securing a loft.

[0010]

[Means for Solving the Problem] In the bulky coated paper which this invention carries out glazing of the application constituent which uses a pigment and adhesives as a principal component after applying on the paper which consists of cellulose pulp and drying, and lets it pass between the rolls of equipment, carries out a pressure welding, and comes to carry out surface treatment This coated paper has the application layer of per [10] one side - 25 g/m² to both sides, and the application constituent which constitutes this application layer contains a kaolin 70% of the weight or more per weight of all bone-dry pigments. Both sides of this coated paper are 40 - 88% of JIS. P It has the 75-degree specular gloss defined by 8142. And JIS of this coated paper P The U.S. basis weight, A (g/m²) and JIS which are defined by 8124 P The

consistency defined by 8118, $B \text{ (g/cm}^3\text{)}$ is the following type (1), and $\{(A-38) \times 0.7 + 45.4\} / A$.
 $\leq B \leq \{(A-38) \times 1.1 + 57.0\} / A$ It is the bulky coated paper characterized by satisfying (1).
[0011] In this invention, coated paper contains a kaolin 75% of the weight or more preferably 70% of the weight or more per weight of all the bone-dry pigments under application presentation, and it is indispensable per [10] one side - 25 g/m², and to have the amount of applications of 12 - 20 g/m² to both sides preferably. Thereby, the coated paper after desiccation carries out glazing, and, as for the surface treatment in equipment, a bulky product is obtained for a linear pressure in 40% or more of glossiness with 200 or less kg/cm and the desirable light pressure welding of 50 - 150 kg/cm.

[0012] Although the rate of combination of a kaolin will be adjusted with the extent since the level of target glossiness changes variously with a user's demands, as bulky coated paper of this invention, the level of a kaolin of glossiness is unsuitable at less than 70 % of the weight, in order [40% or more of / so-called] to respond to this, since dull and it is a gross type thing, and it is necessary to make it surely contain more than this. Furthermore, although it is necessary to lessen the amount of applications as much as possible and has the two or less 25 g/m [per one side] amount of applications to both sides, since covering [of the front face of the paper by application] becomes inadequate, and glazing will be carried out and it will become the so-called cause of gross MOTTORU generating of the ununiformity or gloss nonuniformity of gloss after the surface treatment by equipment if there are too few amounts of applications, the less than two one side 10 g/m amount of applications is unsuitable.

[0013] It is not limited especially about the application machine for obtaining the aforementioned amount of applications, but well-known things, such as a blade coating machine, an air knife coater, a roll coater, and a bar coating machine, are used, and it is applied to one side or both sides of a stencil independently or simultaneous a single stage or multistage.

[0014] As pigments for an application other than the kaolin used for this invention, pigments generally used for the application constituent for coated paper, such as a calcium carbonate, titanium oxide, an aluminum hydroxide, a satin white, a zinc oxide, a barium sulfate, a calcium sulfate, calcium sulfite, talc, a silica, activated clay, diatomaceous earth, a plastics pigment, and a binder pigment, are mentioned, and it chooses suitably from these and is used. In order a plastics pigment and a binder pigment are excellent in gloss manifestation nature compared with a kaolin and to especially obtain the glossiness of the high level of this invention, it is used effectively, but since the fluidity of application liquid is spoiled and it is easy to become the cause of a streak, it is desirable to use small quantity auxiliary.

[0015] As adhesives, furthermore, casein, soybean protein, yeast protein, starch, oxidized starch, Denaturation starch, such as esterification starch, etherification starch, cation-ized starch, and enzyme denaturation starch, The natural adhesive and the styrene-butadiene system copolymer like a cellulosic, Conjugated diene system copolymer latexes, such as a methyl methacrylate-butadiene system copolymer, Acrylic polymer latexes, such as acrylic ester, a methacrylic ester polymer, or a copolymer, A vinyl acetate system polymer latex like an ethylene-vinylacetate copolymer, synthetic adhesives like polyvinyl alcohol, etc. are mentioned, one sort of these adhesives or two sorts or more are used, and it is used by the well-known method of being blended five to 30% of the weight per oven dry weight of a pigment. In addition, on the occasion of preparation of the application liquid for the coated paper of this invention, the various assistants used for usual coated paper, such as a dispersant, a floating modifier, a defoaming agent, and a coloring agent, choose suitably, and are used.

[0016] On the other hand, since blister-proof nature is given, enlarge particle diameter slightly,

the melting point of a polymer is made low, or the latex which lessened gel content is marketed by the coated paper for rotary printing, and these can be suitably used for it. Furthermore, by decreasing the ash content of a stencil, raising the reinforcement of a stencil also contributes to the chip box-proof crack nature of coated paper, and it is effective.

[0017] The application constituent which is the above, and is made and manufactured is applied in the aforementioned application machine on the paper manufactured with the wet paper machine well-known as a raw material in cellulose pulp, such as needle-leaved tree bleached kraft pulp and broad-leaved tree bleached kraft pulp, and although dried and rolled round to 3 - 8% of moisture content in a dryer after that, it is not scrupulous especially if even breakage does not carry out a paint film about desiccation conditions.

[0018] Thus, about an elastic roll, it is easy to be manufactured using a well-known cotton, asbestos, wool yarn, plastics, etc. that what is necessary is just to divert what is used for the mat calender which is used for the surface preparation of the coated paper obtained, and which carries out glazing and has surface roughening rolls, such as a well-known supercalender and software calender gloss calender, about the chilled roll for equipment.

[0019] As said surface treatment of coated paper [in / glazing is carried out and / equipment] was described above, a linear pressure is performed by 200 or less kg/cm, and an application presentation and the amount of applications are tuned further finely if needed, looking at the glossiness of coated paper [finishing / pressure-welding processing] and consistency which are obtained, and the property of front-face nature. Although glazing is carried out and the glossiness of coated paper [so finishing / pressure-welding processing / that the skin temperature of the roll in equipment is high] becomes high, since it is necessary to use the thing of special construction material and since it becomes easy to transform an elastic roll, and the detached building from the roll of coated paper tends to worsen at the time of pressure-welding processing, the range of 40-140 degrees C is suitable.

[0020] Thus, JIS P Although the consistency of the coated paper with which 8142 defined and 75-degree specular gloss measured was made into 40 - 88% changes with U.S. basis weight of coated paper, and a consistency will become low so that the basis weight of coated paper is high this invention person etc. examines the conventional consistency and the basis weight of coated paper, and is JIS. P They are X and JIS about the consistency (g/cm³) of the coated paper measured by 8118. P If U.S. basis weight measured by 8124 is set to A The relational expression found out that the formula of $X = \{(A-38) \times 1.1 + 57\} / A$ was materialized. When the minimum of said glossiness was made into 40%, even if it changed and devised various factors, such as an art of an application presentation, the amount of applications, and a front face, when there is a limit in bulky-ization and the consistency of the coated paper in this limit was set to Y on the other hand, it asked for relational expression with the U.S. basis weight as $Y = \{(A-38) \times 0.7 + 45.4\} / A$ experientially.

[0021] . used as what suited the demand of a commercial scene which satisfies relational-expression $Y \leq B \leq X$ when it set the consistency to B, since the coated paper of this invention had said property carried out -- in addition, about glossiness, 88% was a limitation as bulky coated paper, and no matter what creativity it might put, the thing exceeding this was not obtained.

[0022] As explained above, since glossiness is 40 to 88% of bulky coated paper which was excellent in front-face nature, without being in the range of a gross tone and differing on the front reverse side since it was dull, and the coated paper of stiffness of this invention is expensive not only compared with upgrading of a product but conventional coated paper as

thickness is large, printing workability becomes good and a profound feeling is obtained after printing.

[0023]

[Example] Although an example is given to below and this invention is more concretely explained to it, of course, this invention is not limited by this. In addition, that all it is in below with % show weight %.

[0024] As example 1 pigment, kaolin (Engel HADO minerals - and - Chemicals ultra White 90) 72%, 18% (its company make, grinding calcium carbonate) of whiting with a mean particle diameter of 1.0 micrometers, And with a mean particle diameter of 1.0 micrometers satin white (its company make) 10% is put into a mixer. while stirring to this -- per all bone-dry pigment weight -- oxidization starch (the product made from the Oji corn starch --) Oji ace A5% and latex (Nippon Zeon make, LX407G T-1294) 10%, Furthermore, 0.3% of sodium polyacrylate was carried out as a dispersant, and sequential addition of 0.5% of calcium stearates and the 0.2% of the fluorescent dye was carried out as lubricant, it mixed enough, and after distributing, pH was adjusted to alkalinity using the sodium-hydroxide water solution of concentration 5%.

[0025] In the mixed raw material which consists of 80% (LBKP) of broad-leaved tree bleached kraft pulp of freeness 450mlcsf (Canada standard freeness), and 20% (NBKP) of needle-leaved tree bleached kraft pulp of freeness 400mlcsf per bone-dry pulp weight -- whiting -- 12% and an alkyl ketene dimer system sizing compound (the Kao make --) SAIRIN S-91 0.06% and cationized starch (the Oji National make --) Kate F0.5% was added and paper was milled with the well-known Fortlinear paper machine, and after applying the surface sizing compound of the following formula A 2.0 g/m², drying by size press further, and carrying out a pressure welding with the nip linear pressure of 40 kg/cm in a machine calender, it rolled round to the reel. The U.S. basis weight of a stencil was 81.0 g/m².

[0026]

Surface sizing compound formula A Enzyme denaturation starch (its company make) 80% Polyvinyl alcohol (the product made from Japanese synthetic chemistry, T-330H) 17% Styrene acrylic-acid system sizing compound 3% (the product made from the Arakawa chemical industry, Pori Mallon 1308S)

[0027] After applying said application liquid to both sides of the stencil of said rice basis weight 81.0 g/m² by part for 900m/per one side by the blade coating machine to which a well-known application and desiccation can make 12.0 g/m² simultaneous, it dried so that the moisture content of paper might become 6%, and the coated paper of U.S. basis weight 105.0 g/m² was obtained. Next, this coated paper was ****(ed) so that the-two elastic roll and two chilled rolls whose Shore D degrees of hardness by ASTM specification D-2240 are 85 degrees might have been arranged like drawing 1 , and might carry out glazing and the rear face (wire side in a paper machine) of a stencil might turn up in equipment, the rear face of coated paper was made only the elastic roll, the pressure welding of the front face was carried out only to the chilled roll 3 times 3 times, and surface treatment of it was carried out.

[0028] In addition, in drawing 1 , as for a chilled roll and 2, a paper roll and 5 are coated paper and an elastic roll and 4 used [the sign 1] the thing made of polyether resin (the product made from YAMAUCHI, YCR-5100) for the elastic roll. The skin temperature of a chilled roll made 150 kg/cm the linear pressure of 60 degrees C and nip, and the **** rate was a part for 700m/. The quality of the coated paper which the front face was processed and was obtained was measured and evaluated by the roll by the following approach.

[0029] Approach (1) U.S. basis weight of measurement of quality, and assessment: JIS P It

measured by 8124.

(2) Consistency : JIS P It measured by 8118.

(3) Glossiness : JIS P By 8142, it measured at 75 include angles.

(4) Front-face nature : viewing estimated and it displayed by best thing:O, ordinary thing:**, and worst thing:x.

(5) 2-dimensional surface roughness : the surface roughness of coated paper used the Kosaka Laboratory surface roughness measuring instrument (format :SE- 3AK molds), and showed it by arithmetical mean deviation of profile (Ra).

[0030] The U.S. basis weight was 98.5 g/m², and also example 2 stencil milled paper like the example 1. A pigment presentation is kaolin 100%, application liquid used JSR-0632 (Japan Synthetic Rubber make) for the latex, and also was manufactured like the example 1, and per one side, like 15 g/m² and an example 1, it applied and dried to both sides of said stencil, and it obtained the coated paper of U.S. basis weight 128.5 g/m² to them. After [which was processed by part for 700m/in linear pressure 80 kg/cm of roll nip, the skin temperature of 80 degrees C of a chilled roll, and **** rate] two chilled rolls and-two elastic roll of the same specification as an example 1 had been arranged like drawing 2 , the obtained coated paper evaluated quality by the same way as an example 1, so that glazing might be carried out and the pressure welding of each of the rear face and front face of a stencil might be carried out once to a chilled roll twice with equipment at an elastic roll.

[0031] The U.S. basis weight was 112.0 g/m², and also example 3 stencil milled paper like the example 1. The pigment presentation used application liquid as 20% (the product made from the Shiroishi industry, brilliant 15) of precipitated calcium carbonate kaolin 80%, and also it was manufactured like the example 1, and per one side, like 23 g/m² and an example 1, it applied and dried to both sides of said stencil, and it obtained the coated paper of 158.0g/m² to them. The obtained coated paper has been arranged like drawing 3 , and two chilled rolls and-two elastic roll of the same specification as an example 1 carry out glazing. Each field of coated paper to a chilled roll by the opportunity 1 time, The pressure welding was carried out twice to the elastic roll, and after processing by part for 600m/in nip linear pressure 150 kg/cm of a roll, the skin temperature of 140 degrees C of a chilled roll, and **** rate so that both sides of coated paper may be processed by the nip of an elastic roll in the last stage of processing, the same way as an example 1 estimated quality.

[0032] The pigment presentation considered as plastics pigment (product made from Japanese acrylic chemistry, low PEIKU HP-91) 10% kaolin 90%, and, as for example 4 application liquid, JSR-0632 (Japan Synthetic Rubber make) was used for the latex, and also it manufactured like the example 1, and like [both sides of the same stencil as an example 3] the example 3, it applied, and it dried and the U.S. basis weight obtained the coated paper of 158.0 g/m². The obtained coated paper evaluated quality by the same way as an example 1, after [as an example 2 / same] carrying out glazing and processing using equipment by part for 600m/in nip linear pressure 150 kg/cm of a roll, the skin temperature of 120 degrees C of a chilled roll, and **** rate.

[0033] The U.S. basis weight was 61.2 g/m², and also example 5 stencil milled paper in the same way as an example 1. A pigment is kaolin 85% and binder pigment (Asahi Chemical Industry make, L-8808) 15%, and, as for application liquid, JSR-0632 (Japan Synthetic Rubber make) was used for the latex 8% per all pigments, and also it manufactured like the example 1, and per one side, like 12 g/m² and an example 1, it applied, and it dried to both sides of said stencil, and the coated paper of U.S. basis weight 85.2 g/m² was obtained to them. The obtained coated

paper evaluated quality by the same way as an example 1, after [as an example 3 / same] carrying out glazing and processing using an opportunity by part for 700m/in nip linear pressure 50 kg/cm of a roll, the skin temperature of 100 degrees C of a chilled roll, and **** rate.

[0034] The U.S. basis weight obtained in the example 6 example 2 the coated paper of 128.5 g/m² JIS B Carry out glazing and equipment is used. the-two same elastic roll as the-two hard surface roughening roll and example 1 whose surface roughness R_{max} defined by 0601 is 15 micrometers has been arranged like drawing 4 -- After processing by part for 700m/in the skin temperature of 60 degrees C of through, nip linear pressure 80 kg/cm of a roll, and a surface roughening roll, and **** rate so that the pressure welding of each side of the table of coated paper and a flesh side may be carried out once to a surface roughening roll twice at an elastic roll, the same way as an example 1 estimated quality.

[0035] After the U.S. basis weight was 86.0 g/m², and also the pigment presentation of example of comparison 1 application liquid manufactured the coated paper of U.S. basis weight 110.0 g/m² like the example 1 kaolin 67% at 33% of whiting, the skin temperature of a chilled roll was subsequently 80 degrees C and also the stencil performed surface treatment like the example 1, it evaluated quality by the same way as an example 1.

[0036] After [as an example 2 / same] carrying out glazing and processing using an opportunity by part for 600m/in nip linear pressure 200 kg/cm of a roll, the skin temperature of 80 degrees C of a chilled roll, and **** rate, the same way as an example 1 estimated quality for the coated paper of U.S. basis weight 110.0 g/m² obtained in the example 1 of example of comparison 2 comparison.

[0037] both sides of a stencil which the U.S. basis weight was 114.2 g/m², and also manufactured the same application liquid of a presentation as example of comparison 3 example 2 like the example 1 -- per one side -- 8 g/m² -- it applied, and it dried and the coated paper of U.S. basis weight 130.2 g/m² was obtained. After processing the obtained coated paper using the same equipment (refer to drawing 3) as an example 3 by part for 700m/in nip linear pressure 80 kg/cm of a roll, the skin temperature of 100 degrees C of a chilled roll, and **** rate, the same way as an example 1 estimated quality.

[0038] both sides of a stencil which the U.S. basis weight was 99.2 g/m², and also manufactured the same application liquid of a presentation as example of comparison 4 example 4 like the example 1 -- an example 1 -- the same -- carrying out -- per one side -- 28 g/m² -- it applied, and it dried and the coated paper of U.S. basis weight 155.2 g/m² was obtained. After performing surface treatment (refer to drawing 2) like an example 4 about the obtained coated paper, the same way as an example 1 estimated quality.

[0039] The result obtained in the examples 1-4 of a comparison by the table 1 in the result obtained in the examples 1-6 was shown in a table 2.

[0040]

[A table 1]

		実 施 例					
		1	2	3	4	5	6
原料組成 %	材料の炭酸カルシウム沈降性重量	72	100	80	90	85	100
	有機顔料	18		20			
	サリチル酸	10			10	15	
片面当り塗被量g/m ²		12	15	23	23	12	15
表面処理	通紙方法	図1	図2	図3	図2	図3	図4
	ニップ熱圧 kg/cm	150	80	150	150	50	80
	通紙速度 m/分	700	700	600	600	700	700
	ニップ表面温度℃	60	80	140	120	100	60
塗被紙	米坪量 g/m ²	105.0	128.5	158.0	158.0	85.2	128.5
	密度 g/cm ³	1.19	0.87	1.05	1.15	0.95	0.88
	光沢度 %表/裏	46/41	65/66	79/76	87/84	70/72	45/44
	表面性 表/裏	○/○	○/○	○/○	○/○	○/○	○/○
	表面粗さ μm 表/裏	0.10/ 0.10	0.04/ 0.03	0.03/ 0.03	0.02/ 0.02	0.03/ 0.04	0.07/ 0.07
米坪量が算出される密度の範囲 g/cm ³							
		上限					
		下限					
		1.24	1.22	1.20	1.20	1.28	1.22
		0.88	0.86	0.82	0.82	0.92	0.85

[0041]

[A table 2]

		比 較 例			
		1	2	3	4
顔料組成 %	カオリン	67	67	100	90
	炭酸カルシウム沈降性重質有機顔料サフ初介	33	33		10
片面当り塗被量 g/m ²		12	12	8	28
表面処理	通紙方法	図 1	図 2	図 3	図 2
	ニップ線圧 kg/cm	150	200	80	150
	通紙速度 m/分	700	600	700	600
	ロール表面温度 °C	80	80	100	120
塗被紙	米坪量 g/m ²	110.0	110.0	130.2	155.2
	密度 g/cm ³	1.22	1.28	0.85	1.22
	光沢度 %表/裏	38/32	42/42	58/57	88/86
	表面性 表/裏	○/○	○/○	×/×	○/○
	表面粗さ μm 表/裏	0.12/ 0.14	0.12/ 0.10	0.22/ 0.24	0.02/ 0.02
米坪量が算出される密度の範囲 g/cm ³					
		上限	1.24	1.22	1.20
		下限	0.87	0.84	0.82

[0042] The coated paper with which it applies, and it dries and the application liquid with which the kaolin is blended proper is obtained in the range of the proper amount of applications so that clearly from a table 1 Although have 40 - 88% of glossiness by performing loose surface treatment by roll nip pressure low after that, smooth nature is high, front-face nature is excellent without gross MOTTORU's occurring, and the consistency of coated paper changes with U.S. basis weight Coated paper with the bulky range of 0.88 - 1.20 g/cm³ is obtained. On the other hand, if the content of a kaolin has not arrived at a proper region, even if it strengthens the surface treatment after an application and desiccation to the upper limit in which the consistency of a product is permitted, glossiness does not reach to a desired level and the coated paper made into the object of this invention cannot be obtained (example 1 of a comparison). If the content of a kaolin has not arrived at a proper region and surface treatment is strengthened in order to give to the level of the minimum which has glossiness permitted, a consistency becomes high too much and dimension height runs short (example 2 of a comparison). Even if it uses the application liquid of the proper rate of a pigment compounding ratio, if there are few amounts of applications, a consistency will fall notably and will fully discover dimension height, but gross MOTTORU is conspicuous on an application front face, and since quality is spoiled remarkably, it is not suitable for practical use (example 3 of a comparison). On the other hand, since there are few rates of a paper part advantageous to ****(ing) relatively compared with an application layer without dimension height when the amount of applications is excessive, the consistency of coated paper becomes high as a result, and since it becomes less bulky, it is not suitable for

practical use (example 4 of a comparison).

[0043]

[Effect of the Invention] As explained above at the detail, this invention does not have gross MOTTORU, either, front-face nature is excellent, it is coated paper with the bulky range whose glossiness is 40 - 88%, and the effectiveness that the coated paper for printing in which the high-class result with a profound feeling is possible can be offered is done so by printing.

[Translation done.]

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